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Customer Number

PATENT  
Docket No.: 58493US003

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: MARTIN G. HARTUNG AND MICHAEL KELLER  
Application No.: 10/828,656 Confirmation No.: 4923  
Filed: April 21, 2004 Group Art Unit 2838  
Title: PREVENTION OF ELECTRO-CHEMICAL CORROSION AT CHARGING  
CONTACTS OF A BATTERY-POWERED HANDPIECE AND ITS  
CHARGER DEVICE

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**SECOND AMENDED BRIEF ON APPEAL**

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August 16, 2007  
Date

Judy L. Hansen  
Signed by: Judy L. Hansen

Dear Sir:

This Amended Brief on Appeal is in response to the Notification of Non-Compliant Appeal Brief dated August 2, 2007. The status of the claims section has been revised to include the status of all of the claims. The Summary of Claimed Subject Matter has been amended as appropriate, and all rejections from the Final Office action are listed, and appealed.

This Amended Brief is filed within the one-month period for reply, so no fee is due.

**REAL PARTIES IN INTEREST**

The real party in interest is 3M ESPE AG, a wholly-owned affiliate of 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota, and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

**RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any related appeals or interferences.

**STATUS OF CLAIMS**

Claims 1-31 have been canceled. Independent claims 32 and 36, and dependent claims 33 through 35 and 37 through 50 are pending, and have all been the subject of a final rejection. Claim 46 was objected to as being in improper form in the Office Action that included a final rejection of the other pending claims, and was not further treated on the merits by the Examiner. The rejection of pending claims 32 through 50 is appealed.

**STATUS OF AMENDMENTS**

Appellants filed an Amendment and Response Under 37 C.F.R. 1.116 on 21 February 2007. In an Advisory Action dated 5 March 2007, the Patent Office indicated that the Amendment would not be entered.

**SUMMARY OF CLAIMED SUBJECT MATTER**

The claims at issue concern the prevention of electro-chemical corrosion associated with charging contacts (2, 3) of a battery-powered handpiece (10) or charging pins (21, 22) of a charger device (20) associated with such a handpiece. See, e.g., page 5, lines 31-34; page 6, lines 8-11. In particular, the claims recite a sensing contact or sensing pin for detecting current flow between two contacts of the handpiece, or the charger device, respectively. See, e.g., page 6, lines 8-24.

Independent claims 32 and 36 may be mapped to the specification and drawings in the following manner, among others.

32. Battery-powered handpiece (see page 5, line 31, and Figure 1 at 10), comprising a sensing contact (see page 6, line 17, and Figure 1 at 4) for detecting current flow between a first charging contact (see page 6, line 19, and Figure 1 at 2), for connection to a first contact of a battery (see page 5, lines 31-32, and Figure 1 at 1), and a second charging contact (see page 6, line 19, and Figure 1 at 3), for connection to a second contact of a battery (see page 5, lines 31-32, and Figure 1 at 1).
36. Charger device for a battery-powered handpiece (see page 6, line 8, and Figure 1 at 20), comprising a sensing pin (see page 6, line 8, and Figure 1 at 23) detecting current flow between a first charging pin and a second charging pin (see page 6, lines 8-9, and Figure 1).

#### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Are claims 32, 35, 36, and 39 anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 5,861,729 (Maeda et al.)?

Are claims 33 and 34 unpatentable as obvious under 35 U.S.C. 103(a) over Maeda et al. in view of Patent Publication 2002/0074970 (Kawashima)?

Are claims 37 and 38 unpatentable as obvious under 35 U.S.C. 103(a) over Maeda et al. in view of U.S. Patent No. 3,851,322 (Compoly et al.)?

Is claim 40 unpatentable as obvious under 35 U.S.C. 103(a) over Maeda et al. in view of U.S. Patent No. 5,945,809 (Inaba et al.)?

Is claim 41 unpatentable as obvious under 35 U.S.C. 103(a) over Maeda et al. in view of U.S. Patent No. 5,867,798 (Inukai et al.)?

Are claims 42 through 45 unpatentable as obvious under 35 U.S.C. 103(a) over Maeda et al. in view of Inukai et al., and further in view of U.S. Patent No. 5,793,186 (Watabe et al.)?

Are claims 47 through 50 unpatentable as obvious under 35 U.S.C. 103(a) over Maeda et al. in view of U.S. Patent No. 5,233,283 (Kennedy)?

#### **ARGUMENT**

The only rejection of independent claims 32 and 36 is under 35 USC § 102(b) as being anticipated by U.S. Patent No. 5,861,729 (Maeda et al.). Because claims 32

and 36 are patentable over Maeda et al. for at least the reasons presented below, those claims and all of the remaining (dependent) claims are in condition for allowance. Reversal of the Examiner's rejection of claims 32 and 36 and a confirmation of the allowability of all of the pending claims (subject to the resolution of certain outstanding objections to the claims) is respectfully requested.

Claims 32 and 36 read as follows:

- 32. Battery-powered handpiece, comprising a sensing contact for detecting current flow between a first charging contact, for connection to a first contact of a battery, and a second charging contact, for connection to a second contact of a battery.
- 36. Charger device for a battery-powered handpiece, comprising a sensing pin detecting current flow between a first charging pin and a second charging pin.

The Examiner rejected these claims over Maeda et al., which relates generally to a charger for portable equipment, in which the charger has circuitry that permits it (among other things) to distinguish between two different types of batteries. The Examiner indicated in the Office Action dated December 29, 2006 that included a final rejection of all pending claims, that:

*“Regarding Claim 32, Maeda et al. disclose in Figures 1 and 2, a battery powered handpiece, comprising, a sensing contact (28) for detecting a current flow between a first charging contact (24), for connection to a first contact of a battery (8), and a second charging contact (26), for connection to a second contact of a battery (10).*

...

*Regarding Claim 36 Maeda et al. disclose in Figure 1-3, a sensing pin (28) detecting a current flow between the two charging pins, 10 and 12, [and] is sensed by the current detector."*

Office Action at page 8 (ellipsis and bracketed text added by Applicants' representative for clarity).

As an initial matter, the features attributed by the Examiner to the "battery powered handpiece" in Maeda et al. (28, 24, and 26) are not part of a battery-powered handpiece at all. They are part of a charger 20. Similarly, the features identified in Maeda et al. in regard to the charger device of claim 36 are not a part of a charger device in Maeda et al. They are part of the handpiece 2. For those reasons alone, Maeda et al. does not anticipate claims 32 and 36, and the rejection of those claims should be reversed. However, Applicants will continue the analysis on the basis that the referenced parts were inadvertently reversed, because the present invention is patentable even over the corresponding handpiece and charger disclosed Maeda et al.

Comparing the structural features of the handpiece and the charger disclosed in Maeda et al. to the inventions of claims 32 and 36 demonstrates that those claims are novel. That is because the auxiliary terminal 12 of the portable telephone 2 in Maeda et al. does not detect current flow between charging terminals 10 and 8, as required in claim 32. What that terminal does do is to provide a connection or electrical contact between the telephone 2 and the charging unit 20. There is no disclosure in Maeda et al. suggesting that the auxiliary terminal is a sensing contact for detecting current flow between terminals 8 and 10 in Maeda et al. Because Maeda et al. does not disclose the subject matter of claim 32, including specifically a sensing contact for detecting current flow between first and second charging contacts, claim 32 is patentable under 35 U.S.C. 102(b) over Maeda et al. Reversal of the final rejection of that claim is therefore respectfully requested.

Similarly, the auxiliary terminal 28 of the charger 20 of Maeda et al. does not detect current flow between charging terminals 24 and 26, as required in claim 36. That auxiliary terminal provides the electrical connection point on the charging unit 20 that corresponds to the auxiliary terminal 12 on the telephone 2. Auxiliary terminal 28 does not sense or detect current flow between charging terminals 24 and 26. Accordingly, Maeda et al. also does not disclose the subject matter of claim 36,

including specifically a sensing pin detecting current flow between first and second charging pins, and claim 36 is patentable under 35 U.S.C. 102(b) over Maeda et al. Reversal of the final rejection of claim 36 is therefore respectfully requested.

Although no obviousness rejection was raised in regard to claims 32 and 36 over Maeda et al. either individually or in combination with any other prior art of record, Applicants respectfully submit that there is no motivation to modify the devices disclosed in Maeda et al., or to combine them with other prior art of record, to arrive at the claimed invention.

Because independent claims 32 and 36 are in condition for allowance for at least the reasons noted above, and the remaining prior art references do not disclose or suggest the features of those claims that are not present in the primary reference, dependent claims 33 through 35, and 37 through 50 are similarly in condition for allowance. Certain objections raised in regard to claims 36, 39, and 46 can be addressed upon remand.

#### CONCLUSION

For the foregoing reasons, Applicants respectfully request that the Board reverse the final rejection of claims 32 and 36 under 35 U.S.C. 102(b) over Maeda et al., reverse or vacate as moot the rejection of the remaining dependent claims, and return the application to the Examiner with a confirmation of the patentability of the pending claims over the prior art of record.

Respectfully submitted,

16 August 2007  
Date

By: 

Peter L. Olson, Reg. No.: 35,308  
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**CLAIMS APPENDIX**

- 1-31. (Canceled).
32. (Previously presented) Battery-powered handpiece, comprising a sensing contact for detecting current flow between a first charging contact, for connection to a first contact of a battery, and a second charging contact, for connection to a second contact of a battery.
33. (Previously presented) Battery-powered handpiece according to claim 32, further comprising a magnet co-operating with a magnetically activatable switch arranged in a charger device, for initiating a charging operation once the battery-powered handpiece is electrically connected to said charger device.
34. (Previously presented) Battery powered handpiece according to claim 33, wherein said magnet is arranged in proximity to the housing of the handpiece.
35. (Previously presented) Battery-powered handpiece according to claim 32, further comprising a diode located between said first charging contact and said first contact of said battery for allowing charging current to flow from said first charging contact into said battery but preventing current flow in opposite direction.
36. (Previously presented) Charger device for a battery-powered handpiece, comprising a sensing pin detecting current flow between a first charging pin and a second charging pin.
37. (Previously presented) Charger device according to claim 36, further comprising a warning means for giving a warning signal if current flow between said first and second charging pins is sensed by said sensing pin.
38. (Previously presented) Charger device according to claim 37, wherein said warning means provides an acoustic and/or optical warning.
39. (Previously presented) Charger device according to claim 36, wherein said sensing pin of said charger device is in contact with a sensing pin at said handpiece if said handpiece is connected to the charger device so that said sensing pin at said charging device further detects current flow between first

and second charging contacts of said handpiece, said current flow having a potential for initiating an electrochemical reaction.

40. (Previously presented) Charger device according to claim 36, further comprising an electronic switch connected to said sensing pins of said charger device for disconnecting a charging voltage applied to said first and second charging pins if current flow is sensed by said sensing pin.
41. (Previously presented) Charger device according to claim 36, further comprising a detector for detecting the presence or absence of said battery-powered handpiece and a switch for switching on/off the charging voltage dependent on detection of the presence/absence of said handpiece.
42. (Previously presented) Charger device according to claim 41, wherein said switch is selected from the group comprising mechanical switches, optical switches, electro-mechanical switches, electro-optical switches or magnetic switches.
43. (Previously presented) Charger device according to claim 42, wherein the magnetic switch comprises a magnetically activatable switch being operable in response to a magnet arranged in said handpiece.
44. (Previously presented) Charger device according to claim 43, wherein said magnetically activatable switch comprises a Reed switch.
45. (Previously presented) Charger device according to claim 41, said switch allowing a charging voltage to be applied to said charging pins in the presence of said handpiece.
46. (Previously presented) In combination, a battery powered handpiece according to claim 32 and a charger device comprising a sensing pin detecting current flow between a first charging pin and a second charging pin, wherein the first charging pin is adapted for electrical connection to the first charging contact of the handpiece, and the second charging pin is adapted for electrical connection to the second charging contact of the handpiece.



47. (Previously presented) Battery-powered handpiece according to claim 32, wherein said handpiece is a dental tool.
48. (Previously presented) Battery-powered handpiece according to claim 47, wherein said dental tool is dental curing light.
49. (Previously presented) Charger device according to claim 36 adapted for use with a dental tool.
50. (Previously presented) Charger device according to claim 49, wherein said dental tool is dental curing light.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.